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10/519,753	07/06/2005	Tsuyoshi Koike	TIC-0081	9256

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EXAMINER	
CHEN, JUNPENG	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,753	KOIKE ET AL.	
	Examiner	Art Unit	
	Junpeng Chen	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to applicant's amendment filed on 11/21/2006. **This action is made FINAL.**

Response to Arguments

2. Applicant's arguments filed 11/21/2006 have been fully considered but they are not persuasive.

Regarding **claims 1** and **2**, Applicant argues that Lubbe does not disclose a low pass filter that performs "both a high-cut control function and a de-emphasis function". However, in lines 34-35 of column 1 of Lubbe, Lubbe discloses a "high cut" device for varying the cutoff frequency of a low-pass filter, and in line 53 of column 1, Lubbe discloses that deemphasis takes place in the low pass. Specifically, Lubbe teaches a circuit has both a high-cut control function and a de-emphasis function. Therefore, all claimed elements were taught in the prior art reference(s), the prior art rejection on claims 1 and 2 is maintained.

Regarding **claims 5** and **7**, Applicant argues that Okuno does not discloses "a changeover unit for changing over the resistance value of the resistors" as claimed. However, in line 14-15 of column 2 of Okuno, Okuno discloses that the resistive element of the deemphasis circuit includes a contribution from the variable impedance means, therefore, if the impedance is being varied, the resistance of the resistance

element (resistors) are also being varied. Specifically, Okuno teaches that "a changeover unit for changing over the resistance value of the resistors". Therefore, all claimed elements were taught in the prior art reference(s), the prior art rejection on claims 5 and 7 is maintained.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by **Lubbe et al. (U.S. Patent No. 5,995,817)**.

Consider **claim 1**, Lubbe et al. discloses a receiver *(read as a AM/FM audio device, lines 12-32 of column 1)* with a high-cut control de-emphasis circuit (read as a "high cut" device for varying the cutoff frequency of a low-pass filter, lines 34-35 of column 1 of Lubbe, and that deemphasis takes place in the low pass, line 53 of column 1), the high-cut control de-emphasis circuit connected in the stage following a high frequency demodulator circuit for demodulating a received signal *(read as an inherently existing demodulator that produces the demodulated signal by the low-pass filter 4, Fig. 1, lines 53-57 of column 3)* and which has both a high-cut control function and a de-emphasis function is made variable based on the reception level *(read as varying the cutoff frequency of a low-pass filter to perform high frequency reduction (deemphasis)*

that takes place in the low pass in accordance with the received field strength, lines 34-57 of column 1).

To further claritfy, in lines 34-35 of column 1 of Lubbe, Lubbe discloses a "high cut" device for varying the cutoff frequency of a low-pass filter, and in line 53 of column 1, Lubbe discloses that deemphasis takes place in the low pass.

Consider **claim 2**, Lubbe et al. discloses a receiver *(read as a AM/FM audio device, lines 12-32 of column 1)*, comprising:

a demodulation unit for demodulating a received signal *(read as an inherently existing demodulator that produces the demodulated signal to the low-pass filter 4, Fig. 1, lines 53-57 of column 3)*

an attenuation unit which is connected in the stage following the demodulation unit and which has both a high-cut control function and a de-emphasis function (read as a "high cut" device for varying the cutoff frequency of a low-pass filter, lines 34-35 of column 1 of Lubbe, and that deemphasis takes place in the low pass, line 53 of column 1) and attenuates the high frequency component of a received signal *(read as the low-pass filter 4 connects following the inherently existing demodulator to filter the high frequencies, Fig. 1, lines 53-61)*;

a variable unit for making the cut-off frequency of the attenuation unit variable *(read as the connectable and disconnectable capacitors 16, 18..., Fig. 3 and Fig. 4, lines 44-64 of column 4)*; and

a generation unit for generating a control signal for controlling the operation of the variable unit based on the reception level of the received signal *(read as the analog-*

to digital converter 2 receives a received filed strength signal and converts this signal into digital signal DS to control the connections of the connectable and disconnectable capacitors 16, 18..., Fig. 1 and Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2).

Consider **claim 3**, **as applied to claim 2 above**, Lubbe et al. discloses the receiver, wherein the generation unit generates a control signal for controlling the operation of the variable unit based on the reception level of the FM reception signal *(read as the audio device is operating in FM, the analog-to digital converter 2 receives a received filed strength signal and converts this signal into digital signal DS to control the connections of the connectable and disconnectable capacitors 16, 18..., Fig. 1 and Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2).*

Consider **claim 4**, **as applied to claim 2 above**, Lubbe et al. discloses the receiver, wherein the generation unit generates a control signal so that the cut-off frequency of the attenuation unit becomes smaller as the reception level of the received signal becomes lower *(read as they cutoff frequency of the low-pass filter is lowered at field strengths supplying signal VF below V1 and this lowering of the cutoff frequency goes as far as lower limit V2, line 62 of column 3 to line 1 of column 4).*

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lubbe et al. (U.S. Patent No. 5,995,817)** in view of **Okuno (U.S. Patent No. 4,221,930)**.

Consider **claim 5**, Lubbe et al. discloses a receiver *(read as a AM/FM audio device, lines 12-32 of column 1)*, comprising:

a demodulation unit for demodulating the FM signal reception signal *(read as the AM/FM audio device operates in FM and an inherently existing demodulator that produces the demodulated signal to the deemphasis unit (low pass filter 4), Fig. 1 and Fig. 4, lines 53-57 of column 3)*;

a deemphasis unit (low pass filter 4, Fig. 1 and Fig. 4) that comprises a resistor R and a capacitor *(read as connectable and disconnectable capacitors 16, 18..., which work together with the resistor R for attenuating the high frequency components as well known in the art, Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2)* connected in the stage following the demodulation unit (*read as the deemphasis is connected to receive a demodulated signal, lines 53-57, column 3*);

a generation unit for generating a control signal for controlling the changeover operation of the changeover unit based on the reception level of the FM signal (read as the analog-to digital converter 2 receives a received filed strength signal and converts this signal into digital signal DS to control the connections of the connectable and disconnectable elements, Fig. 1 and Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2).

However, Lubbe et al. fails to discloses a resistor consisting of two or more resistors; a changeover unit for changing over the resistance value of the resistors; a capacitor which attenuates the high frequency component of the signal in combination with the resistors; and a generation unit for generating a control signal for controlling the changeover operation of the changeover unit based on the reception level of the FM signal.

In related art, Okuno teaches a radio system *(lines 10-15 of column 1)* which comprises a deemphasis 40 *(Fig. 6)* comprising:

a resistor consisting of two or more resistors connected in the stage following the demodulation unit *(read as resistor 72 with variable impedance of transistor Q5 and resistor 76 with variable impedance of transistor Q6, Fig. 7, lines 43-68 of column 5)*;

a changeover unit for changing over the resistance value of the resistor *(read as the variable impedance device 38, which comprises Q5 and Q6, Fig. 6 and Fig. 7, lines 43-68 of column 5)*. To further clarify, in line 14-15 of column 2 of Okuno, Okuno discloses that the resistive element of the deemphasis circuit includes a contribution from the variable impedance means, therefore, if the impedance is being varied, the resistance of the resistance element (resistors) are also being varied.

a capacitor which attenuates the high frequency component of the demodulated signal in combination with the resistors *(read as capacitor 74 and 78 are working together as deemphasis networks to perform deemphasis function – high frequency reduction, Fig. 7, lines 56-68 of column 5)*;

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to incorporate the teaching by Okuno into the teachings by Lubbe et al. to change the design of the filter for the reason of using resistors as the varying elements instead of capacitors. This design change is also implied in Lubbe et al.' s invention in lines 60-65 of column 1.

Consider **claim 6**, **as applied to claim 5 above**, Lubbe et al., as modified by Okuno, further discloses that the generation unit generates a control signal so that the resistance value of the resistor becomes larger as the reception level of the FM signal becomes *lower (read as the cutoff frequency of the RC low pass type deemphasis unit, which is controlled by the DS signal from A/D converter 2, is lowered at field strengths supplying signal V_F below V1 and this lowering of the cutoff frequency goes as far as lower limit V2, Fig. 1, line 46of column 3 to line 1 of column 4. Furthermore, this citation means that if the reception level of the FM signal goes lower, the cutoff frequency will be lower, (A→B). Since the deemphasis unit by Okuno is calculated by* $f_c = \frac{1}{2\pi RC}$, *where* f_c *is the cutoff frequency, R is the total Resistances and C is a constant which represents the total Capacitances. According to the formula, if cutoff frequency is becoming smaller, the total resistances will become larger, (B→C). By using train rule in logic, (A→B) and (B→C) will give A→C. Specifically, A→C means if the reception level of the FM signal becomes lower, the resistor becomes larger, which is the same thing as the resistance value of the resistor becomes larger as the reception level of the FM signal becomes lower).*

Consider **claim 7**, Lubbe et al. discloses a receiver which receives an FM signal or an AM signal *(read as a AM/FM audio device, lines 12-32 of column 1)*, further comprising:

a demodulation unit for demodulating the FM signal or the AM signal *(read as the AM/FM audio device operates in AM/FM and an inherently existing demodulator that produces the demodulated signal to the deemphasis unit (low pass filter 4), Fig. 1 and Fig. 4, lines 53-57 of column 3)*;

a deemphasis unit (low pass filter 4, Fig. 1 and Fig. 4) that comprises a resistor R and a capacitor *(read as connectable and disconnectable capacitors 16, 18..., which work together with the resistor R for attenuating the high frequency components as well known in the art, Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2)* connected in the stage following the demodulation unit (*read as the deemphasis is connected to receive a demodulated signal, lines 53-57, column 3*);

a first generation unit for generating a first control signal for controlling the changeover operation of the changeover unit based on the reception level of the FM signal; *(read as the AM/FM audio device is working in FM and the analog-to digital converter 2 works in FM mode to receives a received filed strength signal about FM and converts this signal into digital signal DS to control the connections of the connectable and disconnectable elements, Fig. 1 and Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2)*; and

a second generation unit for generating a second control signal for AM for controlling the changeover operation of the changeover unit based on the reception level of the AM signal; *(read as the AM/FM audio device is working in AM and the analog-to digital converter 2 works in AM mode to receives a received filed strength signal about AM and converts this signal into digital signal DS to control the connections*

of the connectable and disconnectable elements, Fig. 1 and Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2).

a selection unit for selecting either the first control signal for the second control signal for AM based on a received signal and outputting the selected signal to the changeover unit (read as since the AM/FM audio device is for AM/FM, it inherently has a selection unit which can select either FM or AM for reception, and thus control signal or control signal for AM can be selected accordingly based on either FM or AM detection. As a result, either control signal or control signal for AM will be used for varying the deemphasis unit, *lines 12-32 of column 1*).

However, Lubbe et al. fails to discloses a resistor consisting of two or more resistors connected in the stage following the demodulation unit; a changeover unit for changing over the resistance value of the resistor; a capacitor which attenuates the high frequency component of the demodulated FM signal or AM signal in combination with the *resistors*;

In related art, Okuno teaches a radio system *(lines 10-15 of column 1)* which comprises a deemphasis 40 *(Fig. 6)* comprising:

a resistor consisting of two or more resistors connected in the stage following the demodulation unit *(read as resistor 72 with variable impedance of transistor Q5 and resistor 76 with variable impedance of transistor Q6, Fig. 7, lines 43-68 of column 5)*;

a changeover unit for changing over the resistance value of the resistor *(read as the variable impedance device 38, which comprises Q5 and Q6, Fig. 6 and Fig. 7, lines 43-68 of column 5).* To further clarify, in line 14-15 of column 2 of Okuno, Okuno

discloses that the resistive element of the deemphasis circuit includes a contribution from the variable impedance means, therefore, if the impedance is being varied, the resistance of the resistance element (resistors) are also being varied.

a capacitor which attenuates the high frequency component of the demodulated signal in combination with the resistors *(read as capacitor 74 and 78 are working together as deemphasis networks to perform deemphasis function – high frequency reduction, Fig. 7, lines 56-68 of column 5)*;

Therefore, it would have been obvious for a person with ordinary skill in the art to incorporate the teachings by Okuno into the teachings by Lubbe et al. and allows the deemphasis unit taught by Okuno to attenuate AM/FM signal for the purpose of having a deemphasis unit with variable resistances.

Consider **claim 8**, **as applied to claim 7 above**, Lubbe et al., as modified by Okuno, further discloses that the first generation unit generates a first control signal so that the resistance value of the resistor becomes larger as the reception level of the FM signal becomes *lower (read as the cutoff frequency of the RC low pass type deemphasis unit, which is controlled by the DS signal from A/D converter 2, is lowered at field strengths supplying signal V_F below V1 and this lowering of the cutoff frequency goes as far as lower limit V2, Fig. 1, line 46of column 3 to line 1 of column 4. Furthermore, this citation means that if the reception level of the FM signal goes lower, the cutoff frequency will be lower, (A→B). Since the deemphasis unit by Okuno is calculated by $f_c = \frac{1}{2\pi RC}$, where f_c is the cutoff frequency, R is the total Resistances*

and C is a constant which represents the total Capacitances. According to the formula, if cutoff frequency is becoming smaller, the total resistances will become larger, (B→C). By using train rule in logic, (A→B) and (B→C) will give A→C. Specifically, A→C means if the reception level of the FM signal becomes lower, the resistor becomes larger, which is the same thing as the resistance value of the resistor becomes larger as the reception level of the FM signal becomes lower).

Consider **claim 9**, **as applied to claim 7 above**, Lubbe et al., as modified by Okuno, further discloses the receiver further comprising:

a third generation unit for generating a third control signal for FM for controlling the changeover operation of the changeover unit in order to change the time constant of the de-emphasis function *(read as the AM/FM audio device is working in FM and the analog-to digital converter 2 works in FM mode to receives a received filed strength signal about FM and converts this signal into digital signal DS to control the connections of the connectable and disconnectable elements to vary the deemphasis unit (low pass filter 4), Fig. 1 and Fig. 4, lines 44-52 of column 3 and lines 27-39 of column 2),* and wherein

the selection unit selects either the first control signal, the second control signal for AM or the control signal for FM based on the received signal and outputs the selected signal to the changeover unit (read as since the AM/FM audio device is for AM/FM, it inherently has a selection unit which can select either FM or AM for reception, and thus control signal for FM or control signal for AM can be selected accordingly

based on either FM or AM detection. Also, while in FM mode, a control signal will be selected for varying the deemphasis unit, *lines 12-32 of column 1*).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
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Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street

Alexandria, VA 22314

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junpeng Chen whose telephone number is (571) 270-1112. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Junpeng Chen
J.C./jc

January 23, 2007

EDAN ORGAD
PRIMARY PATENT EXAMINER

2/5/07